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NEW AND CHEAP *no. 11*

ART OF BREAD-MAKING.

The Rich Man's Guide; the Poor Man's Friend.

INSTRUCTIONS

FOR MAKING

UNFERMENTED BREAD;

BEING

A COMPILATION FROM VARIOUS AUTHORS,

WITH

NOTES AND ADDITIONS,

BY HENRY L. B. LEWIS, M.D.


CITY OF NEW YORK.

The first use of the bolting-cloth in our mills was a great error; the further use of it a great evil against the whole human family.
Who will gainsay it?

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NOTICE.

Read, understand, reflect and be wise.

The author of this little treatise has endeavored to compile from the most authentic sources, all of the most important information now known on the subject of making a pure, genuine, as well as an economical article of Bread ; free from the deleterious ingredients commonly used by the patent manufacturers of the article. Their process is to make the *worse* appear the *better* article ; thus it is, regardless of the health of their customers, that we behold them rapidly rise to wealth and consequence.

This treatise is designed more particularly for the use of private families ; from which it is hoped it will be the means of bringing certain gentlemen manufacturers of patent bread to their proper senses, to provide in future, not only a **PURE** article, from **GOOD** flour, but of **FULL** weight.



THE ART OF BREAD-MAKING.

MUCH has been written of late years in relation to the subject of bread-making, with a view of obtaining a good article, unadulterated with the pernicious "stuffs" commonly used by the bakers, to shield the quality of an inferior article of flour, making it appear, by its whiteness, when manufactured into the staff of life, as pure and genuine.

The old and received method of bread-making by fermentation, is generally supposed to be the only way to produce a good and wholesome quality of bread : but nothing can be farther from the truth, as will be shown in the few following pages.

It is a well-ascertained fact, that the only purpose served by fermentation in bread-making, is the generation of the carbonic acid required to raise the dough.

To make unfermented bread, the two following recipes are found to answer best :

No. 1. To make white bread.

Take of flour finely bolted, 3 pounds avoirdupois ; bi-carbonate of soda, in powder, 9 drachms ; hydro-chloric (muriatic) acid, $11\frac{1}{2}$ fluid drachms ; water, about 25 fluid ounces.

No. 2. To make brown bread.

Take of wheat meal, (unbolted,) 3 pounds avoirdupois ; bi-carbonate of soda, in powder, 10 drachms ; hydro-chloric (muriatic) acid, $12\frac{1}{2}$ fluid drachms ; water, about 28 fluid ounces.

Bread made in this way will be both more wholesome and economical than that made by fermentation.

Mode of manufacturing the bread : first, mix the soda and the meal or flour as thoroughly as possible. This is best done by shaking the soda from a small sieve over the meal or flour with one hand, while they are stirred together with the other, and then passing the mixture once or twice through the sieve. Next, pour the acid into the water, and diffuse it perfectly, by stirring them well with a rod of glass or wood. Then mix intimately the meal or flour and the water so prepared as speedily as possible, using a wooden spoon or spatula for the purpose. The dough thus formed

will make two loaves, weighing over two pounds each. They should be put into a quick or very hot oven without loss of time. This is most conveniently done in tins, iron or earthen pots or pans. The earthen deserve the preference, as they yield a better bread than either the tin or the iron. Common flower-pots suit particularly well. Iron does better than tin. But the loaves may be made into a batch and baked in the same way as fermented bread; and if a thin flat tile be placed between each loaf, the tendency to cohere, which, however, is not greater in this than in other dough, will be obviated, and the bread will be, in all respects, equal, or rather superior, to that baked even in earthen pans. The dough may also be formed and baked like family loaves. The oven should be made hotter than for fermented bread. About an hour and a half will be required for the baking.

The proportions of soda and acid are those which make common culinary salt, when united chemically. This union takes place as soon as heat is applied; and then the carbonic acid, being set free in its state of gas, expands the dough, or raises it, so as to form bread. If either the soda or the acid be in excess, the bread will taste of the one or the other accordingly; but it will not be on that account unwholesome. The salt so formed is sufficient to flavor the bread for most palates; but if more be desired, the soda and acid may be somewhat increased, or a small portion of common salt may be superadded, by dissolving it in the water before that is mixed with the acid. The addition of a quarter of an ounce may render the white bread more agreeable in the estimation of some persons. Much handling, and hot water, are hurtful, by causing the union to take place before the proper time. For this reason, the water should be as cold as possible; and more or less of it must be used, as experience will readily direct, to suit the varying quality of the flour, which necessarily differs with seasons, soils, and other circumstances. The dough should not be made stiff; the thinner it is, so it can be handled conveniently, the lighter will be the bread. When too much water has been used, the bread will be unpleasantly moist. Milk (and it answers best when skimmed) may be used on particular occasions, either wholly or in part, instead of water. The soda should be diffused equally through the flour. If it be deficient in any part, the dough will not rise there; and if in another it be too much, or in a little lump, in that place the bread will show a yel-

lowish spot; such marks are disagreeable to the eye, but not otherwise injurious. The largest quantity of flour that can be mixed with ease at one time by a beginner, is twelve pounds; but three times that amount will not be too much for an experienced workman. The whole process of preparation for the oven need not exceed a quarter of an hour; and any person capable of ordinary attention may conduct it: for, on a small scale, it is as simple and as easy as the making of a common pudding, except perhaps the accuracy in quantities is more important. A cook has seldom been known to fail, even on her first trial, when carefully instructed. The only apparatus required, in addition to the usual kitchen furniture, is a graduated glass measure, to measure the acid, a small set of apothecaries weights, to weigh the soda, a small sieve and a wooden spatula.

Two sieves will be wanted when both kinds of bread are made, one adapted for flour and another for meal. As just observed, accuracy in measuring and weighing is essential; but this requires no qualification beyond the most common attention.

It will be convenient to keep some acid, diluted with water, in a bottle for use, since by this means a trivial error in measuring will be of less consequence than when it is in a concentrated state. Add, for example, one part of acid to three of water, or say, *six ounces* of the former to *eighteen* of the latter; and then *five ounces and five drachms* of the diluted acid will be the proportion for three pounds of flour, and *six ounces and two drachms* for three pounds of meal.*

Recipe for making a plain pudding, which may be enriched as desired, by the addition of fruit. etc.

Flour, $1\frac{1}{2}$ pounds; bi-carbonate of soda, $\frac{1}{2}$ ounce, apothecaries weight; muriatic acid, 5 fluid drachms; suet, $\frac{1}{4}$ pound, or more or less; ginger, in powder, $\frac{1}{2}$ a drachm; water, about one pint. Mix according to the directions given above, and boil in the usual way.

* To simplify this matter and to guard against mistakes in the hands of the unskilful, single weights may be prepared for the exact quantity of soda required for three pounds of flour, and for the like of meal, or corn meal, as well also for a mixture of rye and corn meal; and a glass measure, graduated for the corresponding proportions of acid—diluted as advised in the text.

These weights and measures are cheap, and may be procured from the apothecary.

It may seem superfluous to add, that it will save some trouble, and lessen risk, to weigh out portions of soda suited to each baking, for any given time, and preserve them in packets for daily use; or that any one may easily make single weights for himself, from bits of lead suited to the portions of soda which he wishes to weigh.

Recipe for unfermented cakes.

Take of flour, $1\frac{1}{2}$ pounds; bi-carbonate of soda, $\frac{1}{2}$ ounce; muriatic acid, 5 fluid draehms; sugar, $1\frac{1}{2}$ ounces; butter, $1\frac{1}{2}$ ounces; milk, 21 ounces. Mix the flour with the soda as before advised, and then with the butter by rubbing them together. Next, dissolve the sugar in the milk, and diffuse the acid through it by stirring; then mix the whole intimately, adding at discretion, and divide the product into two or more portions for baking, which is effected best in flat earthen pans. Indian or corn meal, buckwheat, wheaten flour, or meal cakes unfermented, are made by the same relative proportions of ingredients as given in the first and second receipts for making bread, by adding a little more water or skimmed milk,* the latter being preferable; keeping the composition as cold as possible. The process of baking must be hastily carried on, immediately after the combination of the materials. Cakes made in this way, however freely indulged in by the weak and sedentary, seldom give any inconvenience.

OBSERVATIONS.

Bread made in this manner contains nothing but flour or meal, culinary salt, and water. It has an agreeable natural taste, keeps much longer than common or fermented bread, is more digestible, and much less disposed to generate acid. Common bread, like every thing that has been partially fermented, ferments easily again, to the great discomfort of many stomachs; and not only so, but by acting as a *ferment*, it communicates a similar action to the food in contact with it, when the digestive power is too weak to control or counteract the operation of the chemical affinities, as “a little leaven leavens the whole lump.”

Unfermented bread, being free from this defect, is beneficial to those who suffer from headaches, acidity, flatulence, eructations, a sense of sinking at the pit of the stomach, distension or pain after meals, and to all who are subject to gout or gravel. It is also useful in many affections of the skin.

These remarks apply to both varieties of the bread, but especially to the *brown*, which is further invaluable to all who are liable to constipation, from torpidity of the colon or large intestines, the common infirmity of the sedentary. The white, on the contrary, is beneficial when the bowels are too much relaxed.

* Eggs, with the milk, are beat up for oorn meal or wheaten flour.

There are other cases, as will presently appear, in which the *brown* is calculated to do much good.

But the advantages of this new process are not limited to matters relating to health. It is valuable, because bread can be prepared by it in the short space of two hours, thus saving much time and labor, and emancipating journeymen-bakers from the slavery of night work. It is valuable also, because the materials are not perishable, and may be rendered available in places, and at times, when yeast or other ferment is not within reach, as at sea, for example, or in country retirements; and it is still more valuable as regards economy.

The cost of the chemicals is counterbalanced by that of the yeast, salt, alum and carbonate of ammonia otherwise employed; but were it not so, they would form an altogether unimportant item in the price of bread; while, by their use, a saving is effected in the flour of about 25 per cent, according to M. Dumas. In bread made by fermentation, the saccharine part of the flour, with a portion of both the gum and the gluten, is lost by being converted into carbonic acid and spirit, which are driven into the atmosphere by the heat of the oven; and this waste is incurred, as was before remarked, solely for the purpose of getting carbonic acid to raise the dough. By the new method, the waste is avoided, and the gas obtained in a manner equally beautiful and efficacious,—another striking instance of the successful application of chemical philosophy to the common arts of life.

It may not be out of place to observe, that mistaken notions respecting the quality of different sorts of bread having given rise to much waste in another way. The general belief is, that bread made of the finest flour is the best, and that the whiteness is the proof of its quality; both these opinions are popular errors. The whiteness may be, and generally is, communicated by alum, to the injury of the consumer; and it is known to men of science, that the entire meal will sustain life, while common bread made with refined flour will not. Keep a man on *unfermented brown* bread and water, and he will live and enjoy good health; give him *fermented white* bread and water only, and he will gradually sicken and die.* The meal of which the first is made contains all the

* This was verified, from a respectable source to the compiler of this tract, while on a late visit to England, as having been tried on 14 convicts on ship board bound to Vandieman's Land.

ingredients essential to the composition or nourishment of the various structures composing our bodies. Some of these ingredients are removed, or much reduced in quantity, by the miller, in his efforts to please the public, and others, as now shown, are destroyed by fermentation; so that bread of fine flour, and particularly when made by the fermenting method, instead of being better than meal bread similarly made, is the least nourishing; and, to make the case worse, it is also the most difficult of digestion. The loss is therefore in all respects a waste; and it seems desirable that the admirers of *white* bread, however made, should be acquainted with these truths, and brought to inquire whether they do not purchase the gratification of their fancy at too high a rate. The unwise preference given so universally to *white* bread led to the pernicious practice already noticed of mixing alum with the flour, and this again to all sorts of adulterations and impositions; for it enabled bakers who were so disposed, by adding more and more alum, to make bread, made from flour of a damaged or an inferior grain, look like the best or the most costly, and to dispose of it accordingly; at once defrauding the purchaser, and tampering with his health. It is one of the advantages of the effervescing process, that it would put an end to all such evil practices, as its chemical materials and alum are incompatible. In this part of the subject the poor are much more interested than the rich, for they are the most likely to get what is adulterated; and, depending most on bread, they are also the most liable to suffer from its lack of nourishment as well as from its impurity.

Among the matters removed by the miller is the larger portion of the saline substances, which are indispensable to the growth of the bones and teeth, and are required, although in a less degree, for their daily repair. Hence the prevalence of soft or imperfectly formed bones and teeth among children whose mothers have made much use of *white* bread while breeding or sucking them, or who have been fed after weaning with the same material. It follows, that *brown* bread should be given to the pregnant, to nurses, and to young or the growing, and that it should be preferred by all, of whatever age, whose bones show a tendency to *bend*, or have weak teeth.

The meal bread will in general be found the best by all persons who have sluggish bowels, and stomachs equal to the digestion of the bran. But with a few it will disagree, for the bran is too ex-

citing to irritable bowels, and dissolved with difficulty in some stomachs. When this happens, the coarser bran should be removed, either wholly or in part; and by so doing the bread may be adapted, with the greatest ease, to all habits and all constitutions. With this proviso (except, perhaps, in some cases of calculus) the least refined, or rather the more natural and most nutritious, will be preferred by all who have an enlightened regard to health and economy.

NOTE.—“Bread made with flour not bolted, or even with an extra quantity of bran, is the best form in which farinaceous and excremental matters can be usually taken; not only in diabetes, but in most of the other varieties of dyspepsia, accompanied by obstinate constipation. This is a remedy, the efficacy of which has been long known and admitted; yet, strange to say, the generality of mankind choose to consult their taste rather than their reason; and, officiously separating what nature has beneficially combined, entail upon themselves much discomfort and misery.”—*Dr. Prout, on diseases of the stomach, &c., page 300.*

In corroboration of the value of *brown* bread, Professor Johnston, of the University of Durham, England, has subjected the meal and flour of wheat to chemical analysis, according to which, the flour of wheat contains, at the lowest estimate, 22 per cent less of the staminal principles of nutrition than the entire meal; (flour unbolted;) and, if to this is added the smallest allowance for the matters destroyed by *fermentation*, we shall be under the mark in saying, that *fermented* flour bread contains 25 per cent less of the nutritious ingredients than fermented meal bread. This loss in quality, together with the loss in quantity, furnishes data for a correct estimate of the relative value of the two as articles of diet. Hence it appears, *for every 75 loaves of fermented bread we might possess 100 of unfermented meal bread; and in every 3 of these at least as much nourishment as is contained in 4 of the other.**

It is a doctrine amongst physicians that more prejudice is caused to health by the articles in common use for human food, than from rich and savory dishes, which latter are less common to the poor. It is the *repetition* of the dose that kills. The slice of bread well impregnated with alum, which is swallowed morning and evening

* By fermentation a barrel of flour, 196 lbs. will make 252 lbs.

By effervescence	“	“	“	295 “
				<u>33 “</u>

does the real harm. Common bread, such as we all purchase for our daily use at the baker's, is but partially fermented. Hence it is that, when swallowed, it acts as a ferment, and communicates a similar action to the food in contact with it. Woe to the unhappy man whose digestive power is not strong enough to control the chemical affinities! He will shortly become liable to headache, acidity, flatulence and all the other distressing symptoms of dyspepsia—that great set-off against all the blessings of civilized life. *

The human family are much indebted to an essay on "baking," by Dr. Thomas Thompson, Professor of Chemistry, in the University of Glasgow, written in 1816. That author had observed that the only purpose served by fermentation in bread-making, was the generation of the carbonic acid required to raise the dough. He then went on to observe that this might be obtained from *carbonate of soda*, by mixing a portion of that article with the flour, and then adding a corresponding quantity of *muratic acid*. At a period long subsequent to the publication of Dr. Thompson's essay, it was fully established as a fact, that bread made in this way by effervescence was more wholesome and more economical than that made by fermentation. Upon this hint a London baker has acted,† and he has given generously to the world the two receipts, in the first part of this tract, Nos. 1 and 2, as those he has found, from many experiments, best to answer the purpose of procuring a cheap and nutritious bread, free from all the deleterious qualities of that commonly in use, called baker's bread.

From these sources was lately published anonymously in London, a pamphlet on making unfermented bread, from which, and other sources, the present compiler has collected and arranged a fund of information upon the subject of bread-making, which he believes invaluable to the human family.

An improved baker's oven, with loaves of bread baked in it upon the unfermented plan, may be seen from 10 A. M. to 4 P. M., at No. 87 Walker street, N. Y., where any information for making bread on the new method, will be given.

* The free use of unfermented bread can be indulged in while warm from the oven without fear of harm by all who prefer it in that state.

† This baker, a Scotchman, commenced the business of bread-making upon this improved plan, in London, about 4 years ago, on very limited means, and by his continued perseverance in providing a *pure article* for his customers, could scarcely meet the demand at an increased price of 2 pence sterling the 4 lb loaf over his powerful competitors in the line of bread-making on the *old plan*. The result gave him quite a large fortune, and through his liberality, the public are greatly indebted for his practical knowledge in the new process of bread-making.